

1 1. A method comprising:
2 exposing an implanted wafer to acoustic energy to
3 activate the implanted species.

1 2. The method of claim 1 including exposing an
2 implanted wafer to acoustic energy to activate the
3 implanted species using a mechanical vibration source.

1 3. The method of claim 2 including using a
2 piezoelectric generator.

1 4. The method of claim 1 including generating
2 acoustic energy using a laser beam.

1 5. The method of claim 1 including exposing the
2 implanted wafer to acoustic energy while heating the wafer.

1 6. The method of claim 5 wherein heating the wafer
2 includes exposing the wafer to a laser beam.

1 7. The method of claim 6 wherein exposing the wafer
2 to a laser beam includes exposing the wafer to an infrared
3 laser beam.

1 8. The method of claim 5 wherein heating the wafer
2 includes exposing the wafer to rapid thermal anneal lamps.

1 9. The method of claim 1 including exposing the
2 wafer to two laser beams, said laser beams having different
3 energy, one of said laser beams to heat said wafer and the
4 other of said laser beams to generate phonons.

1 10. The method of claim 1 including annealing the
2 wafer after ion implantation and subsequently using
3 acoustic energy to activate the implanted species by the
4 generation of phonons.

1 11. A method comprising:
2 implanting a semiconductor wafer; and
3 activating the implanted species by mechanically
4 perturbing said wafer.

1 12. The method of claim 11 including using a
2 piezoelectric transducer to perturb said wafer.

1 13. The method of claim 12 including using a
2 transducer mounted in a wafer holder to perturb said wafer.

1 14. The method of claim 11 including applying heat to
2 said wafer.

1 15. The method of claim 14 including applying heat
2 using rapid thermal annealing lamps.

1 16. The method of claim 14 including applying heat
2 using a laser.

1 17. The method of claim 16 including applying heat
2 using an infrared laser.

1 18. The method of claim 16 including mechanically
2 perturbing said wafer at the same time said wafer is being
3 heated.

1 19. The method of claim 18 including mechanically
2 perturbing said wafer in a rapid thermal annealing furnace.

1 20. The method of claim 14 including heating said
2 wafer and then mechanically perturbing said wafer.

1 21. A method comprising:
2 exposing an implanted semiconductor wafer to a
3 first laser at a first energy; and
4 exposing said implanted semiconductor wafer to a
5 second laser at a second energy lower than said first
6 energy.

1 22. The method of claim 21 including exposing said
2 semiconductor wafer to said second laser to generate
3 acoustical energy.

1 23. The method of claim 22 including generating
2 acoustical energy to activate implanted species.

1 24. The method of claim 21 including exposing said
2 semiconductor wafer to said first laser that is a infrared
3 laser.

1 25. The method of claim 21 including heating said
2 wafer to activate said species.